

REMARKS

Claims 1-15 are pending in the application and claims 1-15 are rejected. The issues in the Office Action mailed November 2, 2004 are:

- Claims 1, 3-5, 13-15 are rejected under 35 U.S.C. § 102(b) as being anticipated by *Pflugrath et al.* (U.S. Patent No. 5,722,412, hereinafter *Pflugrath*);
- Claims 3-5 and 13-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Pflugrath* alone or further in view of *Olson* (U.S. Patent No. 5,495,422) or *Langford, II et al.* (U.S. Patent No. 5,115,435, hereinafter *Langford*);
- Claims 2, 7-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Pflugrath* in view of *Fazoli et al* (U.S. Patent No. 6,527,722, hereinafter *Fazoli*); and
- Claims 3, 6, and 13-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Pflugrath*, and further in view of *Gilling* (U.S. Patent No. 6,126,601), alone or further in view of *Olson* or *Langford*.

I. Claim Rejections under 35 U.S.C. § 102

Claims 1, 3-5, and 13-15 have been rejected under 35 U.S.C. § 102(b) as being anticipated by *Pflugrath*. To anticipate a claim under 35 U.S.C. § 102, a reference must teach every element of the claim. *See* M.P.E.P. § 2131. Claim 1 recites a “pulse wave Doppler application specific integrated circuit (PW-ASIC).” A PW-ASIC as recited by claim 1 is a single ASIC comprising transmit and/or receive circuitry and a plurality of wave form generation circuits. *See* paragraph 0015. *Pflugrath* teaches a portable unit comprising a separate transmit/receive ASIC, front-end ASIC for beamforming, and digital signal processing ASIC for performing Doppler processing. Col. 2, line 51-col. 3, line 13. The transmit/receive ASIC of *Pflugrath* does not comprise wave form generation circuits, which

are located instead in a separate front-end ASIC. *See Pflugrath*, col. 7, lines 25-33.

Accordingly, *Pflugrath* does not teach a PW-ASIC and does not anticipate claim 1.

Claim 3 recites “an ultrasound system application specific integrated circuit (US-ASIC) having at least one beam former, a transducer controller, one or more digital signal processor(s), and a plurality of input/output channels for linking to at least one memory means, a power control system, a transducer and a user interface.” *Pflugrath* teaches separate ASICs, such as a transmit/receive ASIC, front-end ASIC, and digital signal processing ASIC connected on a printed circuit board. *See* col. 1, lines 56-59; col. 2, line 51-col. 3, line 13. Therefore, *Pflugrath* does not teach the US-ASIC recited by claim 3. Accordingly, *Pflugrath* does not teach all limitations of claim 3, and does not anticipate claim 3.

Claims 4-5 and 13-15 each depend, respectively, from claims 1 and 3, and thus inherit all limitations of claims 1 and 3. Each of claims 1 and 3 recites features not taught by *Pflugrath*, as shown above. Accordingly, Applicant respectfully asserts that for the above reasons claims 4-5 and 13-15 are patentable over the 35 U.S.C. § 102(b) rejection of record.

II. Claim Rejections under 35 U.S.C. § 103

Claims 2-15 have been rejected under 35 U.S.C. § 103(a). Applicant respectfully traverses the Examiner’s rejection of these claims. To establish a *prima facie* case of obviousness, three basic criteria must be met. *See* M.P.E.P. § 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Without conceding the second criteria, Applicant respectfully asserts that the references do not meet the first or third criteria. Applicant requests that the 35 U.S.C. § 103 rejections of record be withdrawn and claims 2-15 passed to allowance.

A. Rejection of claims 3-5 and 13-15

Claims 3-5 and 13-15 have been rejected as being unpatentable over *Pflugrath* alone or further in view of *Olson* or *Langford*. As shown above, *Pflugrath* does not teach or suggest at least an ultrasound system application specific integrated circuit (US-ASIC) as recited by claim 3. Nor does *Olson* teach or suggest at least a US-ASIC as recited by claim 3. *Olson* teaches a gate array integrated circuit [300] that contains separate and discrete functional circuit blocks [300a-c] linked to a gating block [304] that allows the gate array integrated circuit to operate in one of three totally separate functions. *See* col. 15, lines 26-40. *Langford* also does not teach or suggest at least a US-ASIC as recited by claim 3. *Langford* teaches a boundary scan test system for use in a digital integrated circuit of a digital system. *See* col. 2, line 65-67. Because *Pflugrath*, *Pflugrath* in view of *Olson*, and *Pflugrath* in view of *Langford* do not teach or suggest all limitations of claim 3, claim 3 is not obvious over the cited references.

Claims 4-5 and 13-15 each depend from claim 3, and thus inherit all limitations of claim 3. Claim 3 recites features not taught by *Pflugrath*. As shown above, claim 3 is not obvious over *Pflugrath* alone or further in view of *Olson* or *Langford*. Accordingly, Applicant respectfully asserts that for the above reasons claims 7-12 are patentable over the 35 U.S.C. § 102(b) rejection of record.

Additionally, Applicant respectfully asserts that the Examiner is applying an “obvious to try” rationale as support for the 35 U.S.C. § 103 rejection of record. None of the references cited by the Examiner, either alone or in combination, teach or suggest all limitations of claims 3-5 and 13-15. The basis for the 35 U.S.C. § 103 rejection of record is essentially that the cited references teach collectively various ASIC components, combinable to form the claimed invention, and that it would have been obvious to try all possible combinations of these components to arrive at the US-ASIC of claims 3-5 and 13-15. Such a rationale is not proper support for an obviousness rejection. *See* M.P.E.P. § 2145.

B. Rejection of claims 2 and 7-12

Claims 2 and 7-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Pflugrath* in view of *Fazoli*. Claim 2 recites a “combined pulse wave and continuous wave Doppler beam former application specific integrated circuit (PC-ASIC).” As shown above, *Pflugrath* does not teach or suggest a PW-ASIC. Nor does *Pflugrath* appear to teach or suggest a combined pulse wave and continuous wave Doppler beam former ASIC. *Fazoli* does not teach or suggest a combined pulse wave and continuous wave Doppler beam former ASIC. *Fazoli* appears to teach only a continuous wave Doppler receiver. *See* col. 3, lines 29-60. Thus, *Pflugrath* in view of *Fazioli* does not teach or suggest all limitations of claim 2, and claim 2 is accordingly not obvious over the cited references. Applicant respectfully requests that the Examiner withdraw the 35 U.S.C. § 103(a) rejection of record and pass claims 2 and 7-12 to allowance.

Claims 7-12 each depend from claim 2, and thus inherit all limitations of claim 2. Claim 2 recites features not taught by *Pflugrath*. As shown above, claim 2 is not obvious over *Pflugrath* in view of *Fazoli*. Accordingly, Applicant respectfully asserts that for the above reasons claims 7-12 are patentable over the 35 U.S.C. § 102(b) rejection of record.

Additionally, Applicant respectfully asserts that the Examiner is applying an “obvious to try” rationale as support for the 35 U.S.C. § 103 rejection of record. None of the references cited by the Examiner, either alone or in combination, teach or suggest all limitations of claims 2 and 7-12. The basis for the 35 U.S.C. § 103 rejection of record is essentially that the cited references teach collectively various ASIC components, combinable to form the claimed invention, and that it would have been obvious to try all possible combinations of these components to arrive at the PC-ASIC of claims 2 and 7-12. Such a rationale is not proper support for an obviousness rejection. *See* M.P.E.P. § 2145.

C. Rejection of claims 3, 6, and 13-15

Claims 3, 6, and 13-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Pflugrath* as applied to claim 3 and further in view of *Gilling*, alone or further in view of *Olson* or *Langford*. Claim 3 recites “an ultrasound system application specific integrated

circuit (US-ASIC) having at least one beam former, a transducer controller, one or more digital signal processor(s), and a plurality of input/output channels for linking to at least one memory means, a power control system, a transducer and a user interface.” As shown above, *Pflugrath* does not teach or suggest the US-ASIC of claim 3. *Gilling* teaches a programmable digital signal processor (DSP) for processing signals in the B mode, M mode, color flow imaging mode and Doppler imaging mode which is preferably an array of DSPs. *See* col. 1, line 56- col. 2, line 45. *Gilling* does not teach or suggest a US-ASIC as recited by claim 3. As shown above, neither *Olson* nor *Langford* teach or suggest the US-ASIC recited by claim 3. Thus, *Pflugrath* in view of *Gilling*, alone or further in view of *Olson* or *Langford* does not teach or suggest all limitations of claim 3, and claim 3 is not obvious over the cited references.

Claims 6 and 13-15 each depend from claim 3, and thus inherit all limitations of claim 3. Claim 3 recites features not taught by the cited references. Also as shown above, claim 3 is not obvious over *Pflugrath* in view of *Gilling*, alone or further in view of *Olson* or *Langford*. Accordingly, Applicant respectfully asserts that for the above reasons claims 6 and 13-15 are patentable over the 35 U.S.C. § 102(b) rejection of record.

Additionally, Applicant respectfully asserts that the Examiner is applying an “obvious to try” rationale as support for the 35 U.S.C. § 103 rejection of record. None of the references cited by the Examiner, either alone or in combination, teach or suggest all limitations of claims 3, 6, and 13-15. The basis for the 35 U.S.C. § 103 rejection of record is essentially that the cited references teach collectively various ASIC components, combinable to form the claimed invention, and that it would have been obvious to try all possible combinations of these components to arrive at the US-ASIC of claims 3, 6, and 13-15. Such a rationale is not proper support for an obviousness rejection. *See* M.P.E.P. § 2145.

Applicant respectfully requests that the Examiner withdraw the rejections of record and pass all claims to allowance. In view of the above, Applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 06-2380, under Order No. 65744/P011C1/10313161 from which the undersigned is authorized to draw.

Dated: February 2, 2005

Respectfully submitted,

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